Caleo
Electrical Safety Test in the USA and Canada according to according to UL2601-1 / Table 19.100 and Table IV

1 Visual inspection of basic unit

- Power cord and power cord connection
- Compare fuses to stated ratings on the backside of the Incubator next to the inlet of the power cord.

2 Safety testing Caleo with Biotek Model 501

- **Warning**: These tests can expose personnel to hazardous electric shock and must be carried out with caution.
- Note: Do not plug the Biotek 501 Pro safety analyzer power cord into a line isolation monitor as inaccurate readings may occur.
- Plug the Biotek 501 Pro power cord into a live AC receptacle, place the power switch of the Biotek 501 Pro to the "1" or ON position and ensure that the keys marked "GROUND", "NEUTRAL" and "POLARITY" are in the NORMAL position.
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lit, they are in the normal position.

2.1 Chassis Resistance Testing

- Attach the ground lead from the red "Test lead" input to the ground hole of the AC test receptacle on the Biotek 501 Pro. Select the "Single lead" condition by ensuring that the "SINGLE/DUAL" key is not illuminated. Press the gray key marked "RESIST", then press the blue key marked "CAL". When the word CAL is no longer shown in the display window of the Biotek 501 Pro, you may proceed.
- Remove the red lead from the ground hole of the AC test receptacle and attach the alligator clip to the free end, leaving the other end plugged into the red "Test lead" input of the Biotek 501 Pro with the "Single Lead" and "Resistance" conditions still selected.

- Plug the Caleo power cord into the test receptacle of the Biotek 501 Pro.
- Perform 5 tests with the probe attached to the following test items of the Caleo:

  a) Pole, short

  b) Pole, long (option)

  c) Rail for accessories next to mains input

  d) Air heating

  e) Ground stud at the mains voltage distributor

- The resistance reading then shown on the Biotek 501 Pro is the "Chassis Resistance". Bend and exercise the power cord to check for intermittent reading.
- Maximum allowable test values:

Chassis Resistance	0.2 Ohm

- Afterwards leave alligator clip at the potential ground stud.

2.2 Enclosure Leakage Current (Chassis Leakage Testing)

- Press the gray "LEAKAGE" key, leaving all other selections from the previous test the same.
- Switch on Caleo and allow the unit to complete the self-test.
- Switch on humidity module (if option is installed).
- Set air temperature and humidity higher than measured values.
- Set up the Biotek 501 Pro for the following tests by using the white keys labeled "Ground", "Neutral" and "Polarity".
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lit, they are in the normal position.
- This is a measurement of the leakage current from the Chassis to earth ground.

- Maximum allowable test values under Normal Condition:

Normal Ground, Normal Polarity, Normal Neutral:	100 µA
Normal Ground, Reverse Polarity, Normal Neutral:	100 µA

- Maximum allowable test values under Single Fault Condition:

Open Ground, Normal Polarity, Normal Neutral:	300 µA, but not 0 µA
Open Ground, Reverse Polarity, Normal Neutral:	300 µA, but not 0 µA

2.3 Earth Leakage Current (Ground Wire Leakage Testing)

- Remove the red lead with the alligator clip from the Caleo.
- Remove the alligator clip from the red test lead and plug this end into the green input jack "GROUND" on the back panel on the Biotek 501 Pro.
- Leave all other selections from the previous test the same.
- The Caleo is still switched on.
- Set up the Biotek 501 Pro for the following tests by using the white keys labeled "Ground", "Neutral" and "Polarity".
- Note: If the corresponding red LEDs for Ground, Neutral, and Polarity are not lit, they are in the normal position.
- This is a measurement of the leakage current flowing through the ground wire of the power cord.
- Maximum allowable test values under Normal Condition:

Open Ground, Normal Polarity, Normal Neutral:	300 µA, but not 0 µA
Open Ground, Reverse Polarity, Normal Neutral:	300 µA, but not 0 µA

- Maximum allowable test values under Single Fault Condition:

Open Ground, Normal Polarity, Open Neutral:	300 µA
Open Ground, Reverse Polarity, Open Neutral:	300 µA

- Switch off Caleo.

2.4 Patient leakage current from the skin temperature connection to earth

- Remove the test lead from the Biotek 501 Pro and leave all other selections from the previous test the same.
- Short all pins of the two skin temperature connectors using a shorting plug 79 10 484. Plug the other end into the input jack "RA" of the Biotek 501 Pro.
- Select the "ECG LEAK" key on the Biotek 501 Pro.
- Use the Increment or Decrement arrow on the Biotek 501 Pro to select the "RA-Gnd" option.
- Set up the Biotek 501 Pro for the following tests by using the white keys labeled "Ground", "Neutral" and "Polarity".
- Switch on Caleo and allow the unit to complete the self-test.
- Switch on humidity module (if option is installed).
- Set air temperature and humidity higher than measured values.
- Maximum allowable test values under Normal Condition:

Normal Ground, Normal Polarity, Normal Neutral:	100 µA
Normal Ground, Reverse Polarity, Normal Neural:	100 µA

- Maximum allowable test values under Single Fault Condition:

Open Ground, Normal Polarity, Normal Neutral:	500 µA
Open Ground, Reverse Polarity, Normal Neural:	500 µA

- Switch off Caleo and disconnect power cord from the Biotek 501 Pro and remove the test equipment